

WHAT IS CLAIMED IS:

1. An optical disk apparatus for recording data on an optical disk, comprising:

5 means for detecting first reproduced signal quality of test data obtained after test data recorded with write power lower than write power P of a laser beam have been overwritten with said write power P;

10 means for detecting second reproduced signal quality of test data obtained after test data recorded with write power higher than said write power P have been overwritten with said write power P; and

15 means for setting optimum write power on the basis of a difference between said first reproduced signal quality and said second reproduced signal quality.

2. The apparatus according to claim 1, wherein said first and second reproduced signal qualities are jitter or an error rate.

20 3. The apparatus according to claim 1, wherein said setting means sets, as optimum write power, write power P at which a difference between said first reproduced signal quality and said second reproduced signal quality is smaller than or equal to a threshold value.

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4. The apparatus according to claim 3, further comprising:
means for storing said threshold value for each type of said optical disk, wherein

said setting means determines the type of said optical disk

and sets optimum write power through use of said threshold value corresponding to the type of said optical disk.

5 5. The apparatus according to claim 1, wherein said setting means sets, as said optimum write power, a minimum write power level from among write power levels P at which said difference between said first reproduced signal quality and said second reproduced signal quality is smaller than or equal to a predetermined threshold value.

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 6. The apparatus according to claim 1, wherein said setting means sets, as optimum write power, a value determined by multiplying a minimum write power level from among write power levels P at which said difference between said first reproduced
15 signal quality and said second reproduced signal quality is smaller than or equal to a predetermined threshold value, by a constant smaller than one.

 7. The apparatus according to claim 1, wherein said
20 overwriting operation is performed by means of a laser beam pulse which changes from read power to said write power by way of erase power.

 8. An optical disk apparatus for recording data on an optical
25 disk, comprising
 means for detecting

 first reproduced signal quality of test data
 obtained after test data recorded with write power
 lower than write power P of a laser beam have been

overwritten with said write power P or

second reproduced signal quality of test data
obtained after test data recorded with write power
higher than said write power P have been overwritten
5 with said write power P; and

means for setting optimum write power on the basis of said
first reproduced signal quality or said second reproduced signal
quality.

10 9. The apparatus according to claim 8, wherein said first
and second reproduced signal qualities are jitter or an error rate,
and said setting means sets, as said optimum write power, write
power P at which said jitter or error rate becomes lower than or
equal to said threshold value.

15 10. The apparatus according to claim 8, wherein said first
and second reproduced signal qualities are jitter or an error rate,
and said setting means sets, as said optimum write power, a minimum
write power level from among write power levels P at which a rate
20 of change in said jitter or error rate with regard to said write
power P is lower than or equal to a predetermined threshold value.

11. An optical disk apparatus for recording data on an optical
disk, comprising:

25 means for recording test data in a predetermined area of said
optical disk while write power is changed among a plurality of
levels;

first overwrite means for overwriting said test data while
write power is changed among a plurality of levels so as to become

lower than write power used for recording operation;

second overwrite means for overwriting said test data while write power is changed among a plurality of levels so as to become higher than write power used for recording operation;

5 means for detecting, for each write power level, a difference between jitter or an error rate of test data overwritten by said first overwrite means and jitter or an error rate of test data overwritten by said second overwrite means; and

means for selecting write power at which said difference
10 detected for each write power level is smaller than or equal to a predetermined threshold value and setting said selected write power as optimum write power at the time of recording of data.

12. An optical disk apparatus for recording data on an optical
15 disk, comprising:

means for recording test data in a predetermined area of said optical disk while write power is changed among a plurality of levels;

overwrite means for overwriting said test data while write
20 power is changed among a plurality of levels so as to become lower or higher than write power used for recording operation;

means for detecting, for each write power level, jitter or an error rate of test data overwritten by said overwrite means; and

25 means for setting optimum write power at the time of recording of data on the basis of said jitter or error rate.

13. The apparatus according to claim 12, wherein said setting means sets, as said optimum write power, a minimum write power level

from among write power levels at which said jitter or error rate is lower than or equal to a predetermined threshold value.

14. The apparatus according to claim 12, wherein said setting
5 means sets, as said optimum write power, a minimum write power level from among write power levels at which a rate of change in said jitter or error rate with regard to said write power is lower than or equal to said predetermined threshold value.

10 15. An optical disk apparatus for recording data on an optical disk, comprising:

an optical pickup which records test data in a test area of said optical disk while write power is changed among a plurality of levels, subjects said test data to first overwriting while write
15 power is changed among a plurality of levels so as to become lower than write power used for recording said data, and subjects said test data to second overwriting while write power is changed among a plurality of levels so as to become higher than said write power used for recording said data;

20 a signal processing circuit for detecting, for each write power, jitter or an error rate of said test data that have been subjected to said first overwriting, and jitter or an error rate of said test data that have been subjected to said second overwriting; and

25 a controller which computes a jitter or error rate difference between said first overwritten test data and said second overwritten test data for each said write power, selects write power at which said jitter or error rate difference is smaller than or equal to a threshold value set according to said optical disk, and sets said

selected write power as optimum write power, wherein

said controller computes erase power on the basis of said optimum write power, and said optical pickup records data in a data area of said optical disk through use of said erase power and said
5 optimum record power under control of said controller.